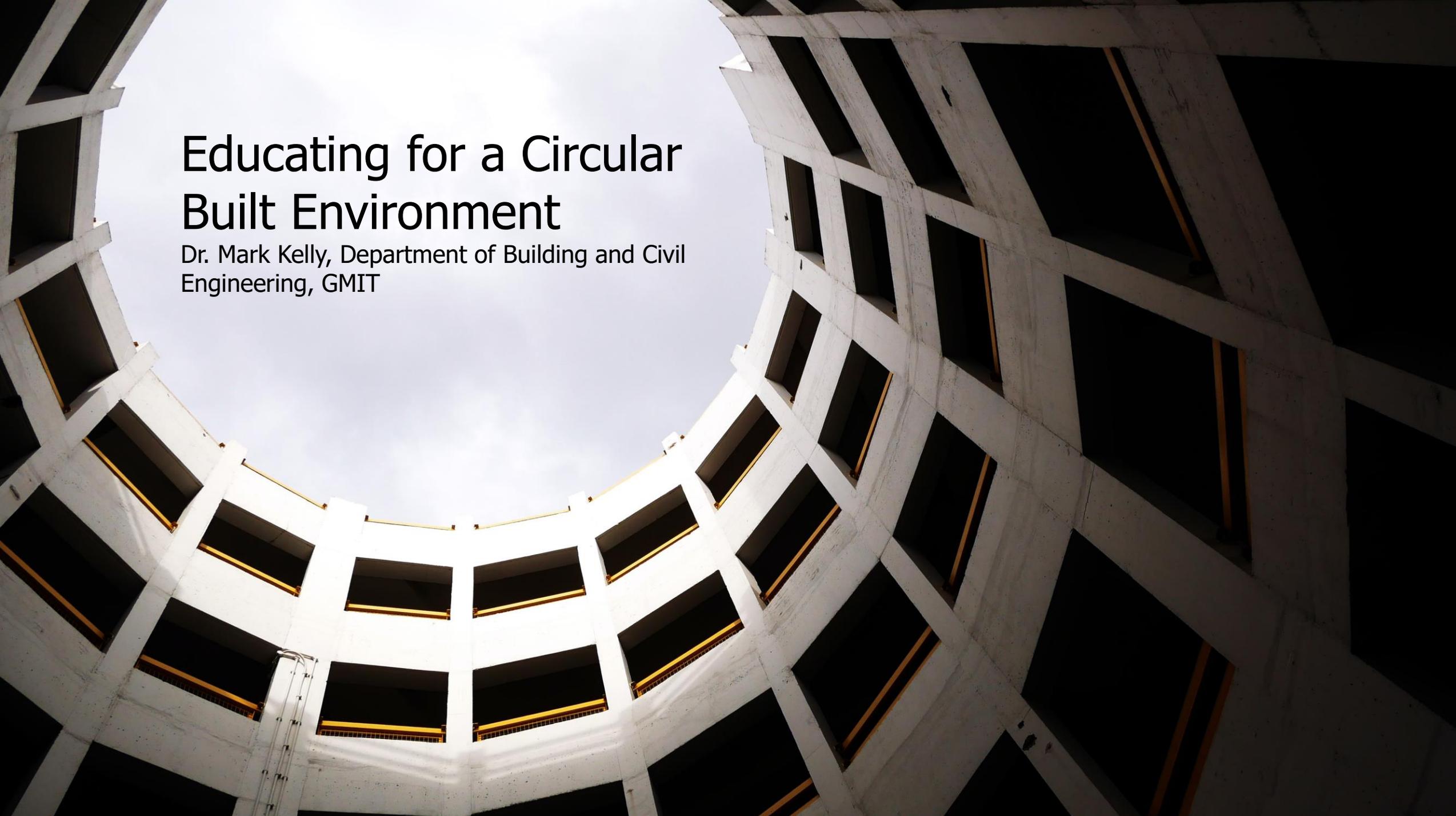


# 11<sup>th</sup> GMIT International Construction Management Day Conference 9<sup>th</sup> March 2021





# Educating for a Circular Built Environment

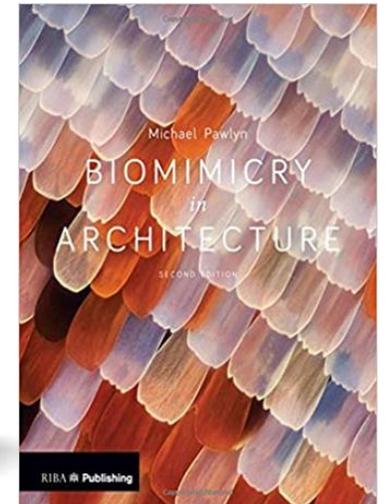
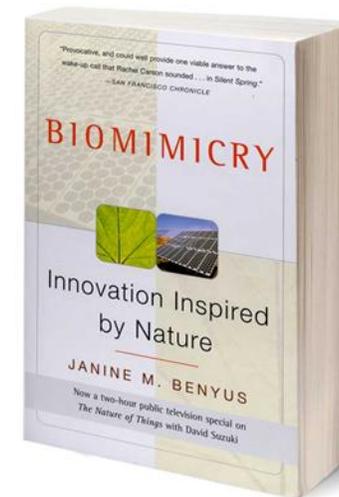
Dr. Mark Kelly, Department of Building and Civil  
Engineering, GMIT

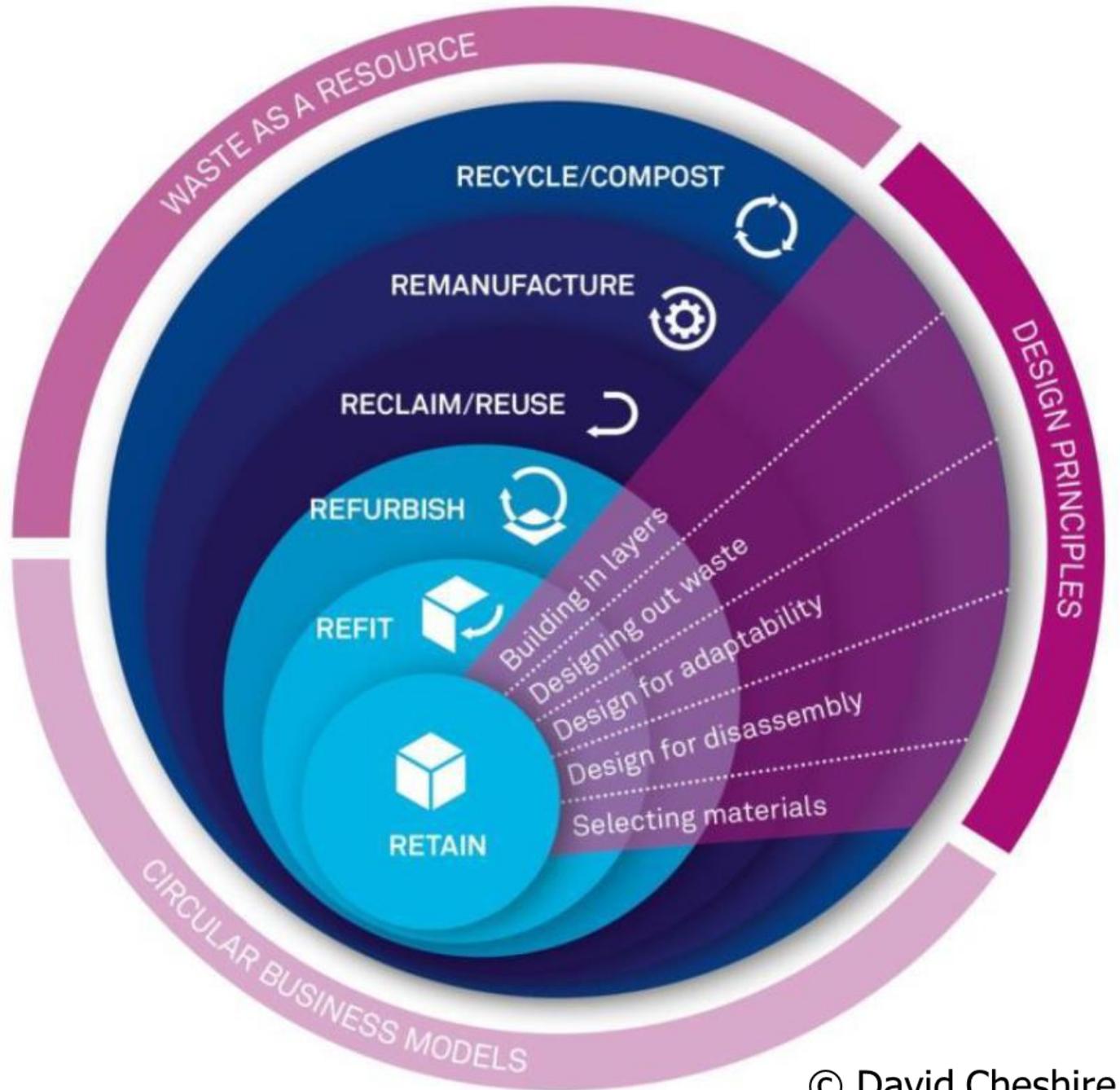
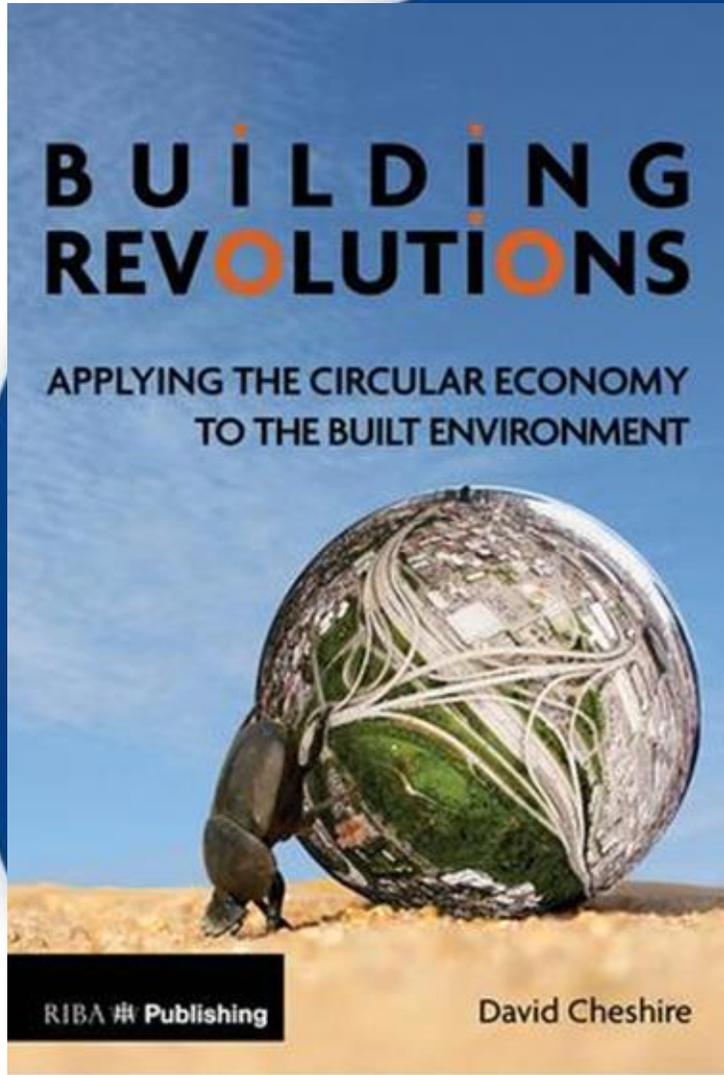
The circular economy is one that is restorative by design, and which aims to keep products, components and materials at their highest value at all times.

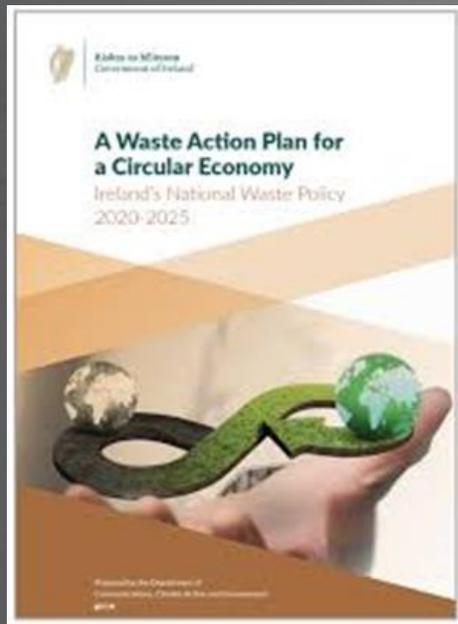
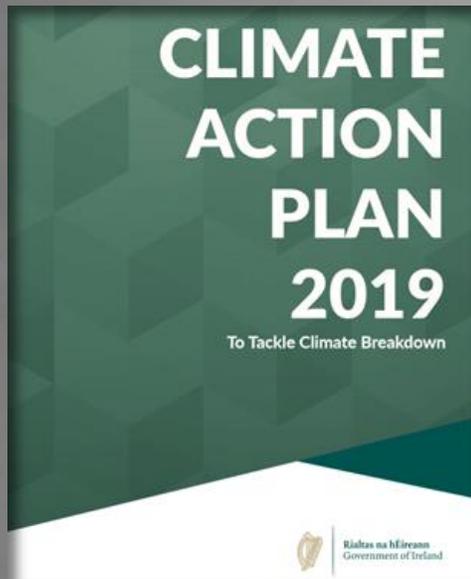
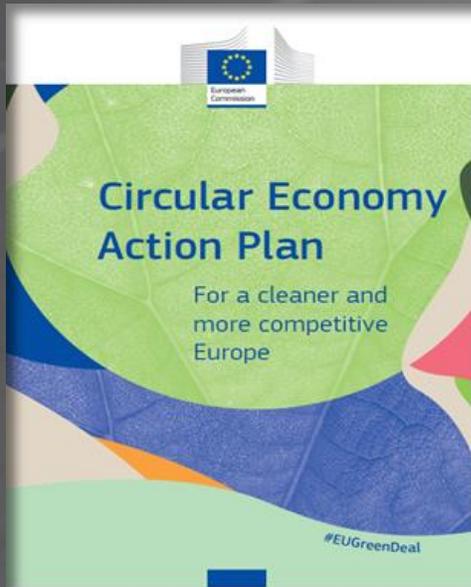
(Ellen McArthur Foundation, 2015)

'A lifecycle approach that optimizes the buildings' useful lifetime, integrating the end-of-life phase in the design and uses new ownership models where materials are only temporarily stored in the building that acts as a material bank.'

(Leising et al., 2018)



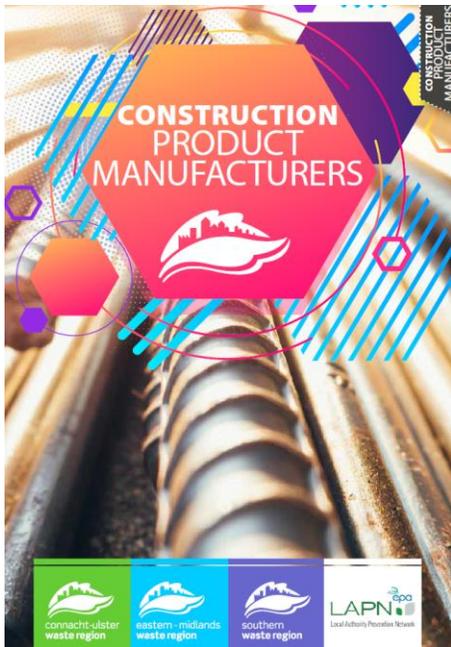




# DRIVERS and RESPONSES



Southern Waste Region in collaboration with Resource Futures and reviewed by GMIT  
<http://southernwasteregion.ie/publications>



[ABOUT](#) [EVENTS](#) [ACTION!](#) [StuCAN](#) [BLOG](#) [More...](#)

[DONATE](#) [GET INVOLVED](#)

# CIRCULAR SERIES

The ACAN Circular Economy group have been focusing on how circular economy principles can be applied within the context of the UK construction industry. We've put together a 9-part event series that addresses the key challenges and opportunities of realising Circular approaches at each of the RIBA stages. To close the circle, we're going to discuss a proposed 'Stage 8' - to address building demolition and reuse.

We've found experts from across the industry to dig down into the nitty gritty of how to incorporate circularity in UK construction in a meaningful way. We hope to learn from their insights in relation to specific projects and the future of practice in general.

# What role can higher education play?

Embed Circular Economy principles into existing programmes i.e., Construction Management, Architectural Technology, Quantity Surveying and Construction Economics, Civil Engineering and Building Information Management (BIM).

GMIT as a Circular Client?

GMIT as a Circular Campus?



HCI Pillar 1 funding for a Level 9 Postgraduate Diploma in Circular Economy for a Sustainable Built Environment.

HCI Pillar 3 funding under the DASBE project for a M.Sc. in Circular Economy for a Sustainable Built Environment

# Level 9 Postgraduate Diploma

Sept. 2021 to Sept. 2022

Exploring the Principles of a Circular Built Environment (15 credits)

Circular Business Models and Leadership (15 credits)

Circular Built Environment Applied Work-Based Research Methods and Project (30 credits)

# Level 9 M.Sc.

Oct. 2022 to June 2023

Applied Research Thesis (30 credits)

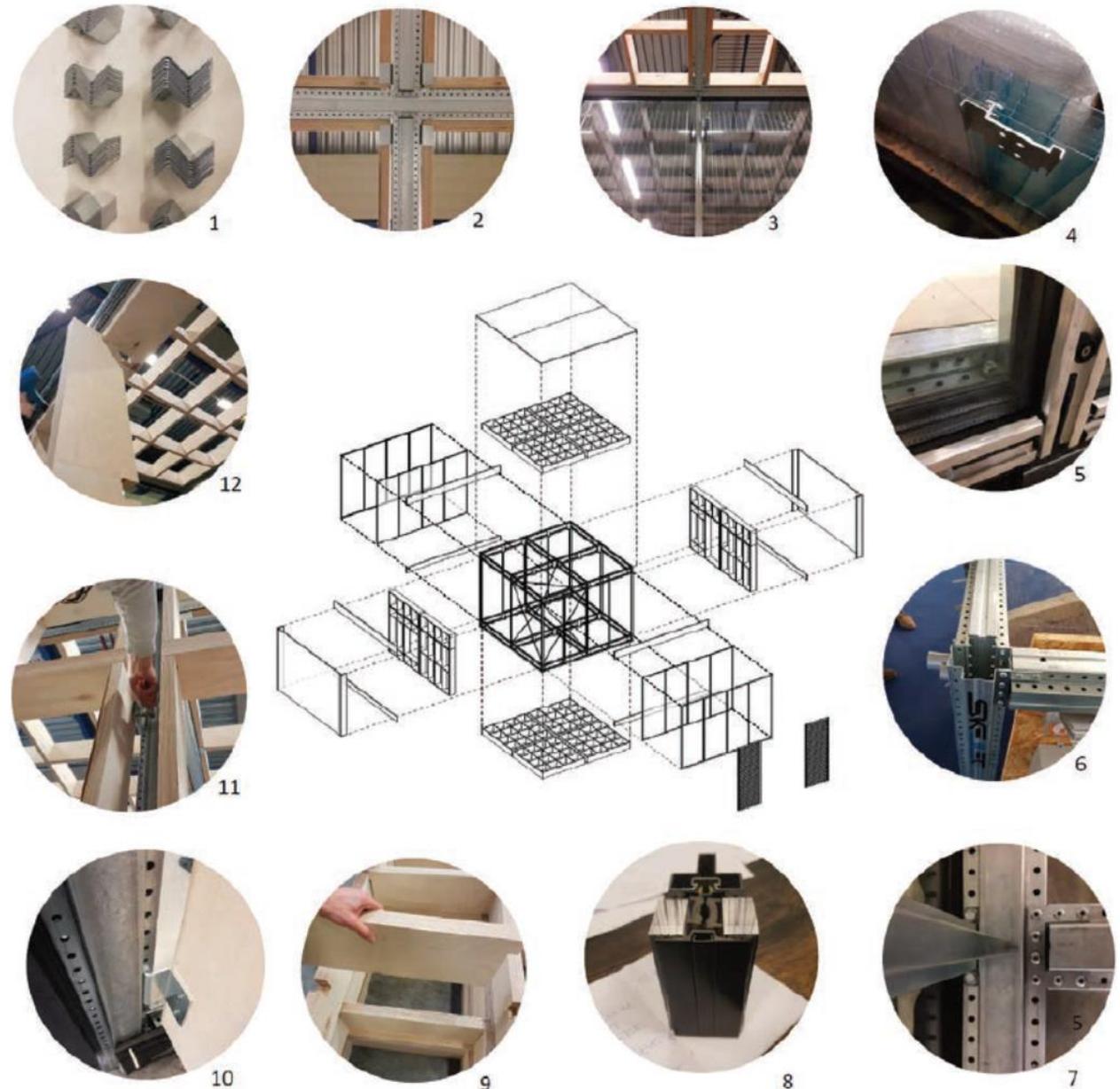


Figure 69 Assembly details of GTB Lab module

## Different scales

Micro (materials, products, components)

Meso (buildings and associated infrastructure)

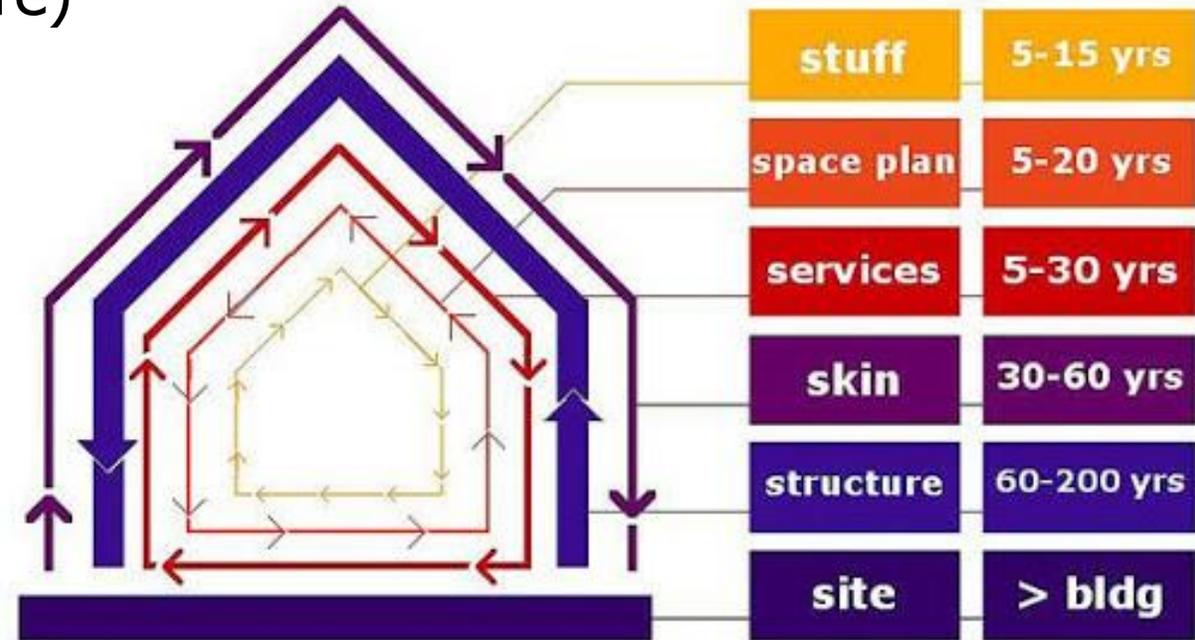
Macro (communities and cities)

## Different Roles

- Local Government and Planning Authorities
- Clients
- Design Teams
- Construction Teams
- Facilities Management and Operational Teams

## Steps in the Transition

- Moving from a linear supply chain to a circular value chain.
- Organizational change and leadership.



## Working Group

John Egan, Executive Safety and Training with the CIF

Pat Barry, CEO of the Irish Green Building Council

Darragh Lynch, Darragh Lynch Architects

Dr. Cian O'Hora, MD with Integrated Materials Solutions

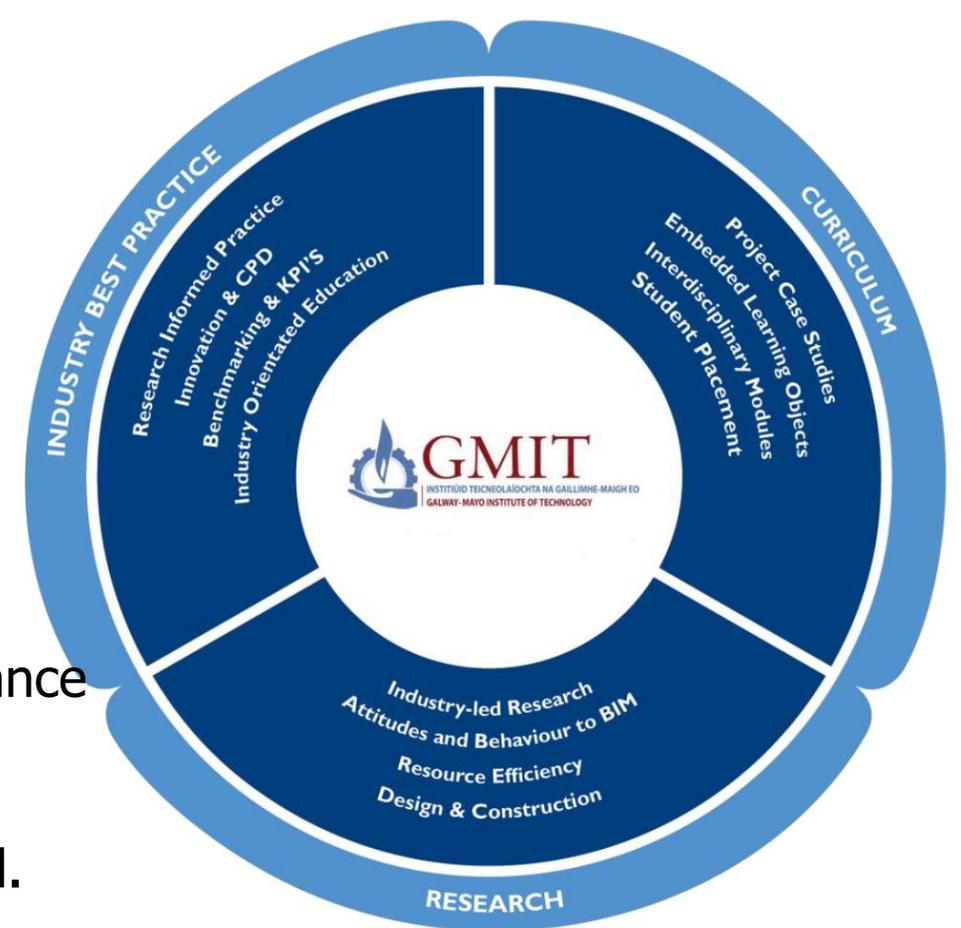
Dr. Vincent O'Malley, Head of Environmental Policy and Compliance with Transport Infrastructure Ireland (TII).

Alan Cawley, Sustainability Manager with John Sisk and Son Ltd.

Philippa King, Regional Waste Coordinator with the Southern Waste Region

Peter Quigley, Head of Environment, Health, Safety and Sustainability with Willis Bros Ltd.

Dr. Jan Gottsche, Dr. Shane Newell, John Scahill and Keith Burke (all GMIT)



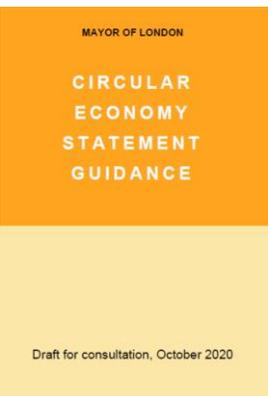
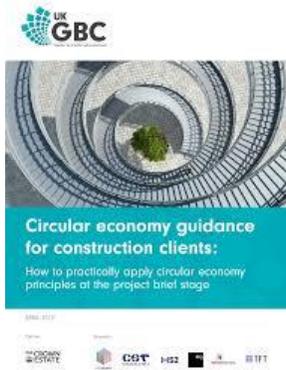
# PG Diploma and M.Sc. in BIM and Digital Leadership

HCI Pillar 1 and Pillar 3 funding.

Currently under development.

Digitalization for a Circular Built Environment.

Commence September 2021.



- ▶ Prevent, reduce, reuse (byproducts) & recycle
- ▶ Off-site fabrication

- ▶ Maintenance including digital information logs
- ▶ Sharing facilities & space
- ▶ Recycling

- ▶ Flexibility
- ▶ Modularity
- ▶ Durability
- ▶ Design for disassembly & waste avoidance
- ▶ Green procurement

- ▶ Smart renovation & retrofit
- ▶ Imaginative reuse

- ▶ Durable, repairable & recyclable products
- ▶ Recycled materials (end of waste)

- ▶ Pre-demolition plan
- ▶ Selective and soft stripping techniques
- ▶ Sorting, reusing & recycling



# Many thanks for your attention

You are interested in the Circular Economy programme or getting involved in some applied research in this area, please email me at:

[Mark.Kelly@gmit.ie](mailto:Mark.Kelly@gmit.ie)

